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UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

FOREST INSECT INVESTIGATIONS

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FOREST INSECT SURVEYS, SEQUOIA NATIONAL FOREST

Season of 1937 - 1938

by
S. T. Carlson
Berkeley, California
October 22, 1938

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U. S. GOVERNMENT PRINTING OFFICE 60918

Forest Insect Laboratory
Berkeley, California
October 22, 1938

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Season of 1937 - 1938.

APPROVED BY:

J. M. MILLER
Senior Entomologist, In Charge

SUBMITTED BY:

S. T. CARLSON
Agent.

FOREST INSECT SURVEYS, SEQUOIA NATIONAL FOREST

Season of 1937 - 1938.

A survey of forest insect conditions in a limited area of the Sequoia National Forest was made by the Bureau of Entomology and Plant Quarantine, Division of Forest Insects, in August and September 1938. The entire cost of this survey was borne by the Bureau. The survey party consisted of E. F. Wohletz, C. W. Hanks and W. E. Bullard under the leadership of S. T. Carlson.

Methods of Survey

Three new sample plots were laid out in representative forest types. A 100% loss cruise of these plots (Table I, Appendix) enabled estimates to be made of losses in Unit areas (Map, Appendix) and a determination of infestations. Supplementary information and data obtained by general observation from vantage points and road traverses were also utilized.

Losses for 1937 were thus obtained and a partial estimate for the 1938 losses.

Infestation characteristics and compositions were obtained by felling currently infested trees and analyzing the insect broods therein.

The survey was extended to include all tree species that were attacked by insects. Heretofore, surveys have usually included only the pines.

General Conditions

Insect infestations were light during 1937 and subsequent losses were very low. Although the 1938 estimates are not complete, it appears that there will be no increase for that year over the 1937 losses.

The heaviest losses have occurred in the Jeffrey pine type in the Woodward Creek Unit.

The mountain pine beetle infestation which has been very active in the lodgepole pine at Holby Meadow has died out.

Tendencies and Characteristics of Infestations

Infestations during 1937-38 have shown a fairly uniform distribution throughout the range of the pine types.

Ponderosa pine losses have been due chiefly to attacks initiated by the western pine beetle, Dendroctonus brevicomis Lec. Ips and flatheads have not been prominent in initiating attacks.

Attacks in the Jeffrey pines on the better sites were initiated by the Jeffrey pine beetle, Dendroctonus jeffreyi Hopkins; those on the poorer sites were initiated by flatheaded borers, followed by the Jeffrey pine beetles and pine engraver beetles.

Unit Losses

Four Unit Areas have been set up in which estimates of 1937-1938 losses have been made. It is hoped that all of the principal forest areas can be eventually set up into units.

Camp Nelson Unit. Barkbeetle infestations in this unit in previous years have taken a large amount of the trees. A decline which began in 1936 has continued. The 1937 losses are extremely low and indications are that they will be sustained in 1938.

Camp Wishon Unit. Endemic infestations prevail in this unit. Insect control operations have held losses to a minimum and have prevented the development and spread of the small infestations that have shown up.

Whitaker Unit. Losses of ponderosa pine in this unit are relatively low for 1937-38. The present infestation does not warrant control measures.

Woodard Creek Unit. Losses in the Jeffrey pine stands of this unit are relatively low, although the trees killed were large, mature trees. The 1937 infestation appears to have developed quite suddenly from an extremely low one in 1936. This increase may be seasonal or may indicate a rising trend of infestation here. It is felt that the forest growth in this unit has a high value and any infestations above normal should be reduced by control measures.

Lodgepole pine needleminer

A needleminer, believed to be the lodgepole pine needleminer, Recurvaria milleri Busck, was found to be quite active in the lodgepole pine at Mineral King. Defoliation was rather severe and has resulted in the killing of many branchlets and terminals. A few of the weakened trees were being killed by mountain pine beetle attacks.

The adult of the needleminer, a moth, emerges from the needle in alternate years and will be seen in flight in July and August, 1939.

Needleminer larvae were also found in red and white firs, and Jeffrey pine in the vicinity of Mineral King.

Alder Flea Beetle

A severe defoliation of the alders in the vicinity of Camp Nelson occurred this year. Evidence of the responsible insect indicates that it is the Alder Flea Beetle (Haltica bimarginata Say.). Residents complained that the beetles when in flight entered the houses and were extremely annoying. Repeated defoliations by this beetle eventually result in the death of the tree. Control can be had by applying arsenical sprays at the time the insects are feeding.

Recommendations

In view of the fact that endemic infestations prevail in the areas examined, control work is not recommended. Areas of exceptionally high use, scenic beauty, or recreational areas such as Camp Nelson, Woodard Creek, etc., should be closely watched for rising infestations. Forest tree growth in these areas has a high value.

The needleminer in lodgepole pine and other tree species should be surveyed. This pest in certain forest regions has paved the way for subsequent barkbeetle attacks.

The defoliation of alders in the Camp Nelson area should be investigated during the season of 1939.

TABLE I.

MEASURED PLOT LOSSES - SEQUOIA NATIONAL FOREST
1937 and 1938 (in part)

Plot	Area (acres)	Forest type	Tree species	1937 Loss			1938 Loss (incomplete)		
				No.trees	Vol.BM	Vol.BM/A	No.trees	Vol.BM	Vol.BM/A
Camp Nelson	120	Ponderosa-sugar pine	Ponderosa pine	1	6,710	56			
			Sugar pine				1	230	2
			TOTAL	1	6,710	56	1	230	2
			White fir	1	1,600	13	1	1,600	13
			Incense cedar	2	3,640	30	1	1,570	13
Woodard Creek	160	Jeffrey pine	Jeffrey pine	13	12,270	77	1	160	1
			White fir	10	34,000	212			
			Red fir	1	1,630	10	1	2,100	13
Whitaker	160	Ponderosa pine	Ponderosa pine	11	5,230	33	3	4,550	28
			Sugar pine				1	30	
			TOTAL	111	5,230	33	4	4,580	29
			White fir						
			Incense cedar	2	4,410	28	2	5,490	34

TABLE II. ESTIMATED UNIT LOSSES, SEQUOIA NATIONAL FOREST, 1937-38.

Unit	Timbered acres	Tree Species	1937 Loss No. trees	1937 Loss Volume BF	1938 Loss No. trees	1938 Loss Volume BF
Camp Nelson	20,000	Ponderosa pine	150	90,000	120	72,000
		Sugar pine	10	11,000	5	5,500
		White fir	75	130,000	75	130,000
		Incense cedar	45	150,000	40	150,000
		TOTAL	280	381,000	240	357,500
Camp Wishon	13,000	Ponderosa pine	100	60,000	90	54,000
		Sugar pine	5	5,500	5	5,500
		White fir	5	15,000	5	15,000
		Incense cedar	10	3,000	6	2,500
		TOTAL	120	83,500	107	77,000
Whitaker	30,000	Ponderosa pine	880	422,400	800	358,400
		Sugar pine	20	20,000	25	25,000
		White fir				
		Incense cedar	80	70,000	30	25,000
		TOTAL	990	512,400	855	408,400
Woodard Creek	14,000	Jeffrey pine	160	482,800	40	6,400
		White fir	400	1,356,800	200	678,400
		Red fir	40	64,000	40	83,200
		TOTAL	600	1,903,600	280	768,000
Grand total	77,000		1,990	2,880,500	1,482	1,289,150
Unit averages	19,250		497	720,125	370	322,287
Per acre average			.03	37	.02	16

U.S BUREAU OF ENTOMOLOGY
AND PLANT QUARANTINE

SEQUOIA NATIONAL FOREST

UNITS

1. CAMP NELSON
2. WISHON
3. WHITAKER FOREST
4. GENERAL'S HIGHWAY

R.27E. R.28E. R.29E. R.30E. R.31E. R.32E.

T.14S. T.15S. T.16S. T.17S. T.18S. T.19S. T.20S. T.21S. T.22S.

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